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VOL. 8 No. 15

APRIL 11, 1958

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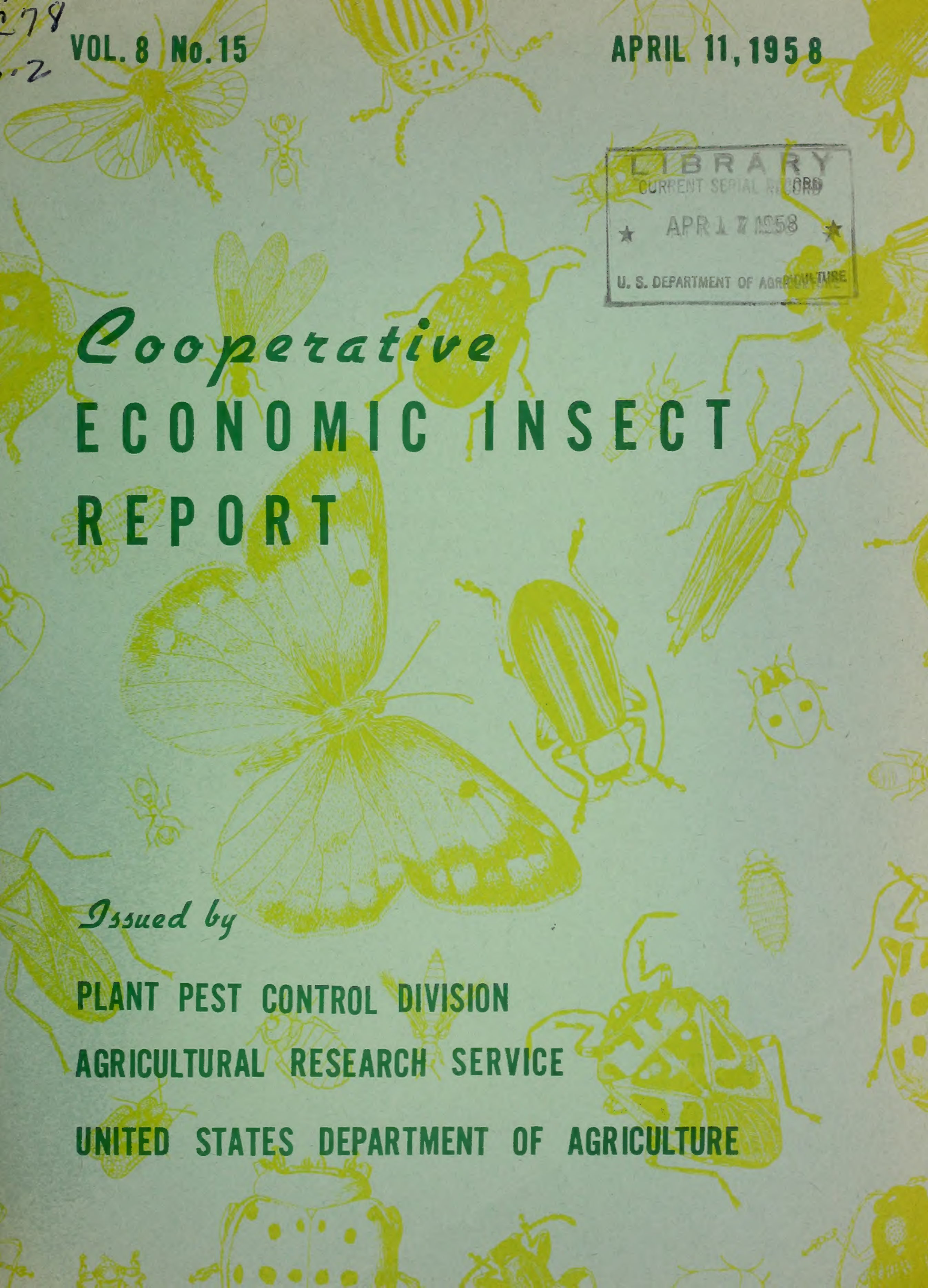

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 8 April 11, 1958 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER survival from 66-84 percent in three areas of Illinois. (p. 275).

GREENBUG light to heavy in areas of Texas. Also active in Alabama and Oklahoma. (p. 275).

WHEAT CURL MITE heavy in Harvey County, Kansas, wheat. (p. 275).

CLOVER LEAF WEEVIL larvae active in legumes in several States. (p. 276).

Early, heavy buildup of APHIDS on citrus of concern in California. (p. 277).

Survey on POTATO PSYLLID on overwintering hosts indicates potential outbreak populations this season. (p. 278).

Largest populations of BEET LEAFHOPPER since 1954 expected in cultivated areas of eastern New Mexico, South Plains and Panhandle of Texas and Arkansas River Valley of Kansas and Colorado. (p. 278). Nevada report on page 280.

COLORADO POTATO BEETLE adults active at Charleston, South Carolina. (p. 279).

BOLL WEEVIL and COTTON FLEAHOPPER survival survey at Waco, Texas. (p. 281).

SUMMARY OF INSECT CONDITIONS - 1957 - Missouri (p. 284).

INSECTS not known to occur in the United States. (p. 289).

Distribution of LESSER GRAIN BORER. (p. 288).

ADDITIONAL NOTES. (p. 280). CORRECTION. (p. 283).

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Reports in this issue are for the week ending April 4, unless otherwise designated.

WEATHER OF THE WEEK ENDING APRIL 7

The first week of April brought thundershowers and rising temperatures to areas east of the Rockies. Precipitation exceeded an inch in most of the East and Midwest, but was less than 0.50 inch along the north central border, parts of the lower Great Plains and the extreme lower Mississippi Valley. A coastal storm early in the week was responsible for most of the heavy rain in the East. This storm developed great intensity off the coast of New England. Tides caused tremendous damage along the shores of Maine, New Hampshire, and Massachusetts, with maximum damage south of Portland, Maine. Highways and sea walls were washed out, and hundreds of cottages and beach concessions were damaged or destroyed. Two inches of snow fell along the east Maine coast where power and communication lines were downed. A weekend storm brought precipitation to all north central and eastern areas. Moderate to heavy rains in most of the north central interior ended a 3-month dry spell there, except in northern Minnesota where precipitation was virtually nil. Twelve inches of new snow fell at Rhinelander and Antigo, Wis., on the 5th, and on the same date at least 3 tornadoes occurred in Illinois, killing one person, injuring several, and causing property losses estimated at about $500,000. In the lower Great Plains the storm brought only strong, drying winds which whipped up dust in parts of eastern Colorado, western Kansas, the Oklahoma Panhandle, causing some wheat damage. Temperatures for the week averaged 6° to 12° above normal near the Canadian Border in the north central interior and slightly above elsewhere east of the Rockies except 3° to 6° below along the coast of Virginia and the Carolinas. Maximum temperatures rose into the 70's on several days in the lower Great Plains, the warmest weather in some sections there since the first week in October. West of the Continental Divide the week was cold with almost daily precipitation, except in some extreme southern areas where only a few light showers occurred. Temperatures for the week averaged 9° below normal in the Great Basin. Rainfall totaled several inches along the Pacific coast.

Precipitation was particularly heavy in California, exceeding 6 inches in the San Francisco and the central Pacific coastal area where much flooding occurred. A small tornado occurred on the 1st near the San Francisco Airport, where 0.96 inch of rain fell in 1 hour on the 2d, the most intense rainfall there since 1.07 inches in 1912. Santa Maria measured 4.22 inches during the first 6 days, the greatest amount for the entire month of April since 1900. Heavy snows fell in the Sierras above 3,000 feet. The station at Soda Springs was buried by snow. Norden reported a 5-day fall of 10 feet, increasing the snow depth there to 269 inches on the 4th. Plant growth and farm work with few exceptions, are now about 2 weeks behind east of the Rockies due to cold wet, weather and wet soil. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - ILLINOIS - Winter survival was 84 percent in northwestern,77 percent in western and 66 percent in central areas. (Ill. Ins. Rept.).

GRASSHOPPERS - NORTH DAKOTA - Limited survey in southwestern areas showed egg development from clear to well-segmented stage. High percentage of examined eggs in coagulated stage. (N. D. Ins. Rept.). NEBRASKA - Eggs of *Melanoplus femur-rubrum* in southeastern areas in clear to coagulant stage. *M. differentialis* eggs in late coagulant to very early eyespot stage. Many meloid parasites present and many eggs covered with fungus. (Andersen, Bell).

GREENBUG (*Toxoptera graminum*) - ALABAMA - Average 10-15 per 10 sweeps in fields of oats, wheat and vetch in Lee, Macon, and Russell Counties. (Grimes). OKLAHOMA - Up to 150 per linear foot in scattered fields of wheat in Hennessey area, Kingfisher County. Considerable spraying has been done. (Owens). Light counts of 0-30 per linear foot in majority of fields in south central counties with as many as 500 per linear foot in Cleveland County, 250 in Carter County and 300 in Love County. Light damage noted in a few fields. Lady beetles common and actively feeding in some locations. Populations reduced by a fungus in Logan County. (Coppock, Pennington). KANSAS - None found in wheat and barley fields in several areas surveyed. (Matthew, Somsen, Marvin). TEXAS - Infestations on small grain spotted heavy through north central areas (Chada), medium to heavy locally in Brazos County (Whipprecht), medium to heavy on 800-1,000 acres in Bowie County (Lynch) and light to heavy in Grimes, Limestone, Navarro, Kaufman and Hunt Counties, with stand killed in some fields (Randolph).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - OKLAHOMA - Light numbers in small grains in all sections of State. Heavy in some south central and east central fields with hundreds per linear foot. (Coppock, Pennington).

ENGLISH GRAIN APHID (*Macrosiphum granarium*) - OKLAHOMA - Common in small grains throughout central and southern areas with 0-100 per linear foot in most counties. (Coppock, Pennington). DELAWARE - Colonies forming on annual ryegrass in central and western Sussex County. (MacCreary, Conrad).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ALABAMA - Infestations medium to heavy on oats in Dallas County. (Hays). TEXAS - Light to medium infestations in Hunt and Kaufman Counties. (Randolph).

WHEAT CURL MITE (*Aceria tulipae*) - KANSAS - Heavy populations found in Harvey County fields. Numerous colonies and eggs present in curled wheat leaves throughout area. Populations elsewhere in central counties generally light and confined to drilled fields with abundant volunteer plants. (Somsen, Matthew).

FALSE WIREWORMS (*Eleodes* spp.) - SOUTH DAKOTA - Larval counts averaged 1-2 per linear foot of row in a winter wheat field in Stanley County. (Hantsbarger).

FALL ARMYWORM (*Laphygma frugiperda*) - ALABAMA - Present in Lee and Macon Counties. (Guyton, Grimes).

CUTWORMS - ILLINOIS - Counts in the northwest averaged 0.5 per square foot, 0.1 in the west and 0 in the central part of the State. (Ill. Ins. Rept.).

ARMYWORM (*Pseudaletia unipuncta*) - TEXAS - Light infestations on small grain in Brazos County. (Whipprecht).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - None found in any of the wheat, barley or alfalfa fields surveyed in 12 counties. (Marvin). TEXAS - Few found on vetch in Kaufman County. (Randolph). UTAH - Moderately numerous in some Box Elder County alfalfa fields. (Knowlton).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Hundreds per linear foot in small grains in Love County. (Coppock, Pennington).

A PLANT BUG (Hormostes reflexulus) - CALIFORNIA - Light infestations in wheat in the Ventucopa area of San Luis Obispo County. (Cal. Coop. Rept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ALABAMA - Light numbers in Lee County. (Grimes). OKLAHOMA - Populations remain extremely low in all sections with heaviest numbers, 2-5 per 10 sweeps, reported from Murray County. (Coppock, Pennington). KANSAS - None found in any fields examined in several areas. (Matthew, Somsen). TEXAS - Light on alfalfa in Brazos County. (Whipprecht).

PEA APHID (Macrosiphum pisi) - NEW MEXICO - Light infestations in Socorro County alfalfa fields. (N. Mex. Coop. Rept.). OKLAHOMA - Building up in some central, south central and east central alfalfa fields with counts of 20-225 per 10 sweeps in Okfuskee County and 10-40 in Garvin County. (Coppock, Pennington). KANSAS - Nymphs found in non-economic infestation at 1 location in northern Shawnee County. (Matthew). TEXAS - Heavy infestations on vetch in a Brazos County orchard (Turney, Garner), light on alfalfa in Grimes County and light in vetch in Kaufman and Hunt Counties (Randolph).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Light numbers on burclover and vetch in Lee and Macon Counties. (Guyton, Grimes). TEXAS - Light on alfalfa in Grimes, Burleson, Hunt and Kaufman Counties. (Randolph).

TARNISHED PLANT BUG (Lygus lineolaris) - ILLINOIS - Adults averaged 0.5 per square foot in northwestern, 0.3 in western and 0.3 in central areas of the State. (Ill. Ins. Rept.).

LYGUS BUGS (Lygus spp.) - SOUTH DAKOTA - Overwintering adults active in alfalfa fields in west central area. (Hantsbarger). NEW MEXICO - Average 1 per sweep in alfalfa fields in Socorro County. (N. Mex. Coop. Rept.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ILLINOIS - Adults averaged 0.2 per square foot in northwest, 0 in western and 1.6 in central counties. (Ill. Ins. Rept.).

CLOVER ROOT CURCULIO (Sitona hispidula) - MARYLAND - Light in Talbot County red clover fields. (U. Md., Ent. Dept.).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larval numbers light to moderate on red clover fields, Montgomery and Talbot Counties. Leaf feeding conspicuous. (U. Md., Ent. Dept.). ALABAMA - Larvae numerous on Lee County burclover. Many in last instar. (Guyton, Grimes). OKLAHOMA - Common in alfalfa throughout State with counts of 0-6 larvae per alfalfa crown. Light feeding injury in many fields. (Coppock, Pennington). DELAWARE - Late-instar larvae fairly common in Kent County, less so in eastern Sussex and New Castle Counties. (MacCreary, Conrad). KANSAS - Larvae found in all alfalfa fields surveyed in 5 central, 1 south central and 4 east central counties. Counts ranged 0.5-3 larvae per alfalfa crown. (Matthew, Somsen). ILLINOIS - Larvae average 5.0 per square foot, 3.5 and 0.1 in northwestern, western and central regions respectively. (Ill. Ins. Rept.). VIRGINIA - Larvae damaging alfalfa in Culpeper, Albemarle and Prince Edward Counties. (Evans).

ALFALFA WEEVIL (*Hypera postica*) MARYLAND- Light numbers of small larvae on new growth alfalfa at Fairland, Montgomery County. Hatching retarded by cool wet weather. (U. Md.,Ent. Dept.). VIRGINIA - First-stage larvae observed in Prince Edward County (Evans) and in Fluvanna County (Smith, March 31). First and second-stage larvae feeding in alfalfa in Pittsylvania County. (Dominick).

CUCUMBER BEETLES - ALABAMA - Few specimens of(*Diabrotica undecimpunctata howardi*) observed in vetch in Macon, Lee and Russell Counties. (Guyton, Grimes). NEW MEXICO- Relatively large numbers of *Diabrotica* sp. in alfalfa fields throughout southern half of State. (N. Mex. Coop. Rept.).

FRUIT INSECTS

APHIDS - CALIFORNIA - Generally increasing on citrus in areas of San Bernardino, Los Angeles, Riverside, and Ventura Counties. The situation is being very closely observed as there is concern over this early heavy buildup. (Cal. Coop. Rept.).

WESTERN PEACH TREE BORER (*Sanninoidea exitiosa graefi*) - CALIFORNIA - Populations heavy in peach trees at San Jose in Santa Clara County. (Cal. Coop. Rept.).

CLOVER MITE (*Bryobia praetiosa* complex) - NEW MEXICO - Eggs beginning to hatch on apple trees in Bernalillo and Sandoval Counties. Larvae grouping on green bud tips in unsprayed orchards. (N. Mex. Coop. Rept.).

GREEDY SCALE (*Aspidiotus camelliae*) - CALIFORNIA - Heavy populations on citrus fruit at La Jolla in San Diego County. (Cal. Coop. Rept.).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) FLORIDA - No new finds since November 26, 1957, making 115 fly-free days through March 21. (Fla. Coop. Surv.).

PEACH TREE BORER (*Sanninoidea exitiosa*) ALABAMA - Causing severe damage in 2 small orchards in Lee and Russell Counties. (Grimes). FLORIDA - First reported in 1958 at Gainesville, Alachua County. Det. R.E.Waites. (Fla. Coop. Surv.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) NEW MEXICO - Heavy infestation on unsprayed and unattended apple trees in Bernalillo and Sandoval Counties. (N. Mex. Coop. Rept.).

PEAR PSYLLA (*Psylla pyricola*) CALIFORNIA - Light infestations reported on pear at Chicago Park in Nevada County. (Cal. Coop. Rept.).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) OKLAHOMA - Spinning webs in native plums in Atoka, Coal and Hughes Counties. Infestation light. (Coppock). TEXAS - Infesting peach and plum trees in Brazos County. (Turney, Garner).

PECAN WEEVIL (*Curculio caryae*) OKLAHOMA - Examination of fallen pecans in University orchard at Stillwater showed live larvae in approximately 5 percent of nuts. Escape holes indicated most weevils have emerged and entered soil. (Bieberdorf).

PECAN NUT CASEBEARER (*Acrobasis caryae*) OKLAHOMA - No specimens of overwintering stage found in over 275 pecan branch tips examined in 2 Okfuskee County orchards. (Coppock, Pennington).

OBSCURE SCALE (*Chrysomphalus obscurus*) TEXAS - Killing pecan branches in Brazos County. (Turney, Garner).

HICKORY SHUCKWORM (*Laspeyresia caryana*) ALABAMA - Large numbers in pecan shucks on the ground in Lee County. (Guyton).

FILBERTWORM (Melissopus latiferreanus)-OREGON - Collected from Franquette variety of walnut at Newberg, Yamhill County, in fall of 1957. Det. H.W.Capps. This appears to be first record from this variety in Oregon. (Every).

TRUCK CROP INSECTS

Potato Psyllid Survey on Overwintering Host

Potato psyllid surveys are conducted during late March in the southern overwintering areas. Generally, the weather was favorable for the 1958 survey in Texas. Development of lycium varied considerably between sections and condition of the plants was fair to excellent. Eggs were found in the Big Spring-San Angelo section indicating emergence was not complete.

Lycium was abundant and well advanced in growth in Arizona and California; mostly dormant in New Mexico; beginning to leaf in the Big Springs and El Paso section; one-half to well developed leaves in San Angelo-Del Rio section; very woody in Sanderson section. Severe winter and late spring east of the Continental Divide probably delayed development of lycium except in the southern areas. Potential population for 1958 is greater than in 1957 because of abundance of host and the survey indicates a potential outbreak this season. A comparison of populations found in 1957 and 1958 spring surveys is shown in the table below.

Potato Psyllid Survey on Overwintering Host

State	District	Average No. per 100 Sweeps 1958	1957
Texas	San Angelo	217	184
	Big Springs	227	516
	Del Rio	134	17
	Sanderson-Marathon	181	129
	El Paso	6	158
New Mexico	Southern	7	158
Arizona	Southern	93	95
California	Southern	96	143

(PPC and Coop. States).

Beet Leafhopper Conditions in the Southern Great Plains and Adjacent Areas, 1958

As of March 8, 1958, beet leafhopper (Circulifer tenellus) conditions in the southern Great Plains and adjacent areas may be summarized as follows: The overwintering adults of this insect and its host plants are more abundant and widespread than in any of the past 5 years. Current indications are that the number of spring-generation leafhoppers that will move from the spring breeding areas of the Edwards Plateau & adjacent plains area into cultivated districts of eastern New Mexico, the South Plains and Panhandle of Texas, and the Arkansas River Valley of Kansas and Colorado will be the largest since the study was started in 1954.

The magnitude and time of the movement will depend upon unpredictable weather conditions during March and April. The beet leafhopper is a sunloving, dry-climate insect, and the size of the spring generation can be reduced very rapidly if stormy, wet weather occurs at the time they are hatching.

Details of the 1958 survey: Surveys made in the beet-leafhopper spring breeding areas of New Mexico, western Texas, western Kansas, and eastern Colorado during late February and early March showed the weed-host plants of this insect to be more abundant and widespread than in any year since the study was started in 1954. Stops made at regular intervals throughout the area showed that host plants were present at all but 25 percent of the stops in New Mexico and all but 6 percent of those in Texas. They were abundant and widespread at 23 percent of the stops in New Mexico and 39 percent of those in Texas. In Kansas and Colorado, the host plants were very scarce. They were found at only 20 percent of the stops, and at the majority of those places, they were very scattered.

Beet leafhoppers were found at 49 percent of the stops sampled in New Mexico and averaged 35 per 100 square feet. They were found at 54 percent of the stops sampled in Texas and averaged 21 per 100 square feet. The largest populations of leafhoppers per unit-area were found in the Rio Grande Valley of New Mexico and Texas, but the host plants were scarce. South from Alpine and Sonora, Texas, which is near the 30°30' latitude, the host plants were abundant, but the leafhoppers were scarce. The large breeding area this year is centered around Monahans, Texas, and the southeastern corner of New Mexico. In that area host plants were abundant, widespread, and in good condition for producing a large spring brood, and there was an average of 31 overwintered females per 100 square feet of host plant at the time the survey was made. The spring generation of leafhoppers produced in this area are the ones that move north to infest tomatoes, beets, and other crops in eastern New Mexico, western Texas, western Kansas, and eastern Colorado. (ARS and Coop. States).

BEAN APHID (*Aphis fabae*)- CALIFORNIA - Heavy populations on horse beans in the Richvale area, Butte County. (Cal. Coop. Rept.).

BEET LEAFHOPPER (*Circulifer tenellus*)- TEXAS - Less than 1 per 100 sweeps collected March 7, 14 and 24 in Winter Garden area. (Harding).

CABBAGE APHID (*Brevicoryne brassicae*) - GEORGIA - Infestations on cabbage moderate to heavy in Thomas, Colquitt and Brooks Counties. (Johnson). SOUTH CAROLINA - Populations on early spring cabbage/lower than usual during past winter. Reports now indicate numbers sufficiently abundant to warrent control measures on some plantings. (Reid).

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - SOUTH CAROLINA - First adults seen on March 28 in field in which potato plants were coming up. (Reid).

IMPORTED CABBAGEWORM (*Pieris rapae*)- GEORGIA - Cabbage lightly infested in Colquitt and Brooks Counties. (Johnson). SOUTH CAROLINA - Adults seen laying eggs on cabbage, April 1. (Reid).

MELON APHID (*Aphis gossypii*) - TEXAS - Damage to seedling watermelons in Winter Garden area. (Harding).

SOUTHERN POTATO WIREWORM (*Conoderus falli*) - SOUTH CAROLINA - Overwintering larval populations in potato fields now lower than during past two springs. No adults taken in light traps during February and March for first time since 1954. (Reid).

CUCUMBER BEETLES - NEW MEXICO - *Diabrotica* sp. caused moderate damage to lettuce in Valencia County. (N. Mex. Coop. Rept.). TEXAS - *Diabrotica undecimpunctata howardi*) damaging seedling watermelons in Winter Garden area. (Harding).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Light to moderate on tomato plant beds in Thomas and Colquitt Counties. (Johnson). CALIFORNIA - Light to medium damage to tomato plants in Reedley area of Fresno County. (Cal. Coop. Rept.).

STRAWBERRY CROWN MOTH (*Ramosia bibionipennis*) - OREGON - Limited damage to raspberry plantings in Yamhill County, March 31. Continues scarce in strawberry fields except for infestations in hill area of Washington County. (Rosenstiel).

RASPBERRY ROOT BORER (Bembecia marginata) - OREGON - Second-year larvae actively feeding in year-old cane stubs and at base of this year's fruiting canes in Washington and Marion Counties. (Rosenstiel, March 31).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Infestations on tobacco plant beds light to moderate in 8 tobacco-growing counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light to moderate infestations on tobacco plant beds in tobacco-growing areas of State. (Johnson).

ADDITIONAL NOTES

UTAH - MOSQUITO larvae have appeared in many counties,1-35 Aedes dorsalis and A. vexans per dip along railroad right-of-ways. Most sections have first and second instars; very few pupae. (Fronk, Knowlton, April 2).

FLORIDA - An ARBORVITAE APHID (Cinara tujafilina) found on arborvitae in Brevard and Seminole Counties in late February and early March. (Fla. Coop. Rept.).

ILLINOIS - APHIDS beginning to hatch March 31 in southern area. Several tarnished plant bugs and other bugs noted. (Meyer).

NEVADA - SPOTTED ALFALFA APHID generally light in Clark and southern Nye Counties. PEA APHID light to medium in these counties and 10 to 15 times more numerous than spotted alfalfa aphid. (Zoller, Peterson). Additional spring rains have caused continued good growth of winter and spring vegetation in southern Nevada breeding grounds. Some movement to tomato plants in Moapa Valley, Clark County. Curly top in many of these plants. (Dorst). TICK specimens collected from a Rocky Mountain sheep in Clark County August 10, 1957, determined as Dermacentor hunteri by C. F. W. Muesebeck. (Bechtel).

COTTON INSECTS

Boll Weevil Survival Survey - Spring 1958
TEXAS (Waco) - Five hundred field-collected boll weevils were installed on October 29-31, 1957, in each of 10 cages located in a wood lot in a continuance of survival studies made each year beginning with the winter of 1939-1940. Activity in March, 1958, was 2.1 weevils per inspection, compared with the moderate to high survival years when activity ranged from 4.3 to 26.5. Rainfall for January, February and March, 1958, was 1.23 inches below normal. Weather during the winter was cool but there were no extremly low temperatures or long freezing periods. Freezing temperatures occurred on 28 days with the lowest being 20° on February 13. Because the winter was relatively mild, survival of weevils may be expected to be fairly high and to fall within the range of that occurring in 1957, 1954, 1953, 1952, 1950, 1946, 1945, and 1944, but less than that of 1955 and 1949, when survival was extremely high. After a dry July and August, rains during September, October and November, 1957, made conditions for fruiting cotton favorable and there was a late population buildup, weevils entering hibernation quarters last fall in normal numbers for the area. (Parencia et al.).

Cotton Fleahopper Hibernation and Survival at Waco, Texas: Two species of croton were collected on November 8, 1957, for the cotton fleahopper survival studies. One hundred Croton texensis plants were collected from one location in each of Bell, Coryell, and Bosque Counties and 100 Croton capitatus plants were collected from one location in each of McLennan, Falls, Limestone and Hill Counties. The host plants were installed in emergence cages (100 plants per cage) on February 14, 1958. The first emergence of cotton fleahopper nymphs occurred on March 19. This is the latest date of emergence since 1952 when it was recorded on March 20. Total emergence for the month was 1558. This was greater than in 1956, 1954 and 1952, but considerably less than in 1957, 1955 and 1953. The host plants were collected in the same locations each year. Rains during the fall of 1957 resulted in a heavy crop of croton over the central Texas area. Carryover on this host plant is expected to be general. Moisture conditions are favorable for the development of early hosts and evening primrose has already made considerable progress in development which will be favorable for build-up of early fleahopper populations. If favorable conditions continue, horsemint should make normal progress and the pest should migrate to cotton in late May and early June. Since the early-season insect control program is practiced in this area during that period, it should prevent cotton fleahopper damage to the crop.(Parencia et al.).

Cotton Insect Situation in Lower Rio Grande Valley, Texas: Small amount of damage being caused to cotton by cutworms, spider mites, aphids and fleahoppers. (Deer).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Inspection of 4 lint cleaners in Tillman County March 26 revealed 1 larva. (Hatfield).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SCALE INSECTS - ALABAMA - Kermes galliformis and Lecanium quercifex numerous on twigs of oak trees in Lee County. Specimens of Toumeyella numismaticum scarce, but those found almost full-grown. (Guyton). TEXAS - Icerya purchasi infesting ornamental plants in Waller County. (Turney). OREGON - Based on number of inquiries, greater than normal infestations of Pulvinaria floccifera and Coccus hesperidum are occurring in the State this spring. (Every).

A CURCULIONID (Pissodes sp.) - WEST VIRGINIA - Killing young Scotch pine in a Mason County nursery. (W. Va. Ins. Surv.).

A HACKBERRY BYLLID (Pachypsylla venusta) - KANSAS - Beginning to emerge at Manhattan, Riley County. (Matthew).

A PSYLLID (prob. Trioza tripunctata) - WEST VIRGINIA - Infestation moderate to heavy on red, Scotch and white pine statewide, particularly in plantations. (W. Va. Ins. Surv.).

WHITEFLIES - ALABAMA - Heavy infestations in Lee County on Ligustrum japonica, with large numbers of immature forms on most leaves. Upper surfaces of leaves covered with black fungus. (Guyton).

A LEAF MINER (Liriomyza dianthi) - CALIFORNIA - Occurred on Dianthus caryophyllus at Auburn for a first record in Placer County. (Cal. Coop. Rept.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE LICE - SOUTH DAKOTA - Linognathus vituli and Haematopinus eurysternus prevalent on cattle in widespread locations throughout the State. (Hantsbarger).

SHEEP KED (Melophagus ovinus) - NEW MEXICO - Quite abundant on sheep in Lincoln, Torrance and De Baca Counties. (N. Mex. Coop. Rept.).

STORED-PRODUCT INSECTS

Stored Grain Insects, Oregon: No khapra beetles were found during the inspection of 114 establishments from January through March, 1958. Lesser grain borer was recovered from 4 locations and saw-toothed grain beetle was most prevalent species collected. (Larson).

A DERMESTID (Trogoderma sternale ssp.) - NEVADA - Reared from mixed grain products collected at Minden, Douglas County, Nov. 26, 1957. Det. G. T. Okumura. This appears to be second State record for this species. (Bechtel).

BENEFICIAL INSECTS

ANTHOCORID BUGS (Anthocoris spp.) - SOUTH DAKOTA - Nymphs and adults becoming active in west central area alfalfa fields. (Hantsbarger).

DAMSEL BUGS (Nabis spp.) - SOUTH DAKOTA - Adults active in alfalfa fields of west central area. (Hantsbarger). NEW MEXICO - Averaged about 20-30 per 100 sweeps in alfalfa fields in Socorro County. (N. Mex. Coop. Rept.).

LADY BEETLES - ALABAMA - Several species found in Lee, Macon and Russell Counties, with Olla abdominalis the most common.(Guyton). Hippodamia convergens fairly common in fields of small grain and clover.(Guyton, Grimes).

MISCELLANEOUS INSECTS

BROWN-BANDED ROACH (*Supella supellectilium*) - NORTH DAKOTA - With the reporting of 6 new infestations since January 1, this pest is shown to be established over a wide area of the State. (N. D. Ins. Rept.). - OREGON - Infestation reported from a Redmond house, March 31. Known distribution increasing in the State. (Every).

EASTERN LUBBER GRASSHOPPER (*Romalea microptera*) - FLORIDA - Nymphs noted on *Erigeron* sp. at Collier Seminole State Park, Collier County. First specimens noted for the year, March 20. (Fla. Coop. Surv., March 28).

EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) - DELAWARE - First swarm of season noted April 1 in house in New Castle County. (MacCreary, Conrad).

IMPORTED FIRE ANT (*Solenopsis saevissima* v. *richteri*) - FLORIDA - Extensions found in Jackson, Calhoun and Gadsden Counties. First heavy infestation found in southern Hillsborough County. (Fla. Coop. Surv.).

VARIED CARPET BEETLE (*Anthrenus verbasci*) - OREGON - Numerous reports of home infestations this spring. (Every).

CORRECTION: CEIR 8(14):259 - The last sentence in the boll weevil survey section for South Carolina, North Carolina and Virginia should read: "In only one year (1940) have fewer weevils been found in spring examinations in this county."

LIGHT TRAP COLLECTIONS

	Hel. zea	Pseud. unip.	Trich. ni	Laph. frug.	Agrot yps.	Perid. marg.	Felt. subt.	Prod. ornith.
FLORIDA								
Monticello 4/1		1	1					
Quincy 3/24		29						
SOUTH CAROLINA (County)								
Charleston 3/31-4/6		10		1	1	2		
TEXAS								
Brownsville 3/22-28	80	20	28	60	50	8	222	
Weslaco 3/16-21		953	214	21	89	64	226	36
Winter Haven 3/20		39	7		22	31	11	

MISSOURI

Reported by Stirling Kyd, R. E. Munson and G. W. Thomas

Insect Outbreak Highlights: The heaviest infestation of POTATO LEAFHOPPER within the last decade caused severe yellowing of alfalfa over most of the State during late May and continued into mid-July. Scattered, severe infestations of CUTWORMS resulted in replanting of some cotton and corn fields during May and again in early July in the cotton-growing section of the State, and in mid-July heavy damage to small corn occurred in scattered fields over the northeast quarter of the State. VARIEGATED CUTWORM destroyed new growth following first cutting of alfalfa in the extreme southwest area. EUROPEAN CORN BORER populations reached an all time high as revealed by fall abundance survey, however, the east central and southeast areas showed considerable decline. The State mean for seven districts in 1957 was 346 compared with 90 in 1956 and 132 in 1955. Although no live, overwintering SOUTHWESTERN CORN BORER larvae could be found during the month of April, a moderately heavy first-brood infestation developed in several extreme southwestern counties, and a heavier second-brood developed on late corn in this same area. Percentage of girdled stalks ranged from less than 1 up to 44 percent. Heavy infestations of FALL ARMYWORMS began on late-planted corn early in July and on late-planted grain sorghum in early August and continued throughout the season over most of the State. Damage was light. Scattered fields of late-planted corn and soybeans were heavily damaged by GARDEN WEBWORMS over the western half of the State in mid-July and very heavy populations developed on alfalfa in August over most of the State.

Very heavy populations of CORN LEAF APHIDS were present on grain sorghums and corn by late June and continued into early August over the State, but apparently little or no economic damage occurred. Both first and second generations of CHINCH BUGS caused considerable damage to corn and grain sorghums in the western half of the State. Fall survey revealed that out of 37 counties surveyed 6 counties rated very severe, 8 counties rated severe, 5 counties rated threatening, 3 counties rated light and 15 counties rated non-economic. All heavily infested counties were along the western side of the State. A very heavy outbreak of BAGWORMS occurred from June through August over the State. Several species of shrubs and trees were damaged with some cedars and evergreens killed. BOLLWORM populations began to increase late in July and by mid-August had reached outbreak proportions in parts of Dunklin, New Madrid and Pemiscot Counties. For the second consecutive year, a very few BOLL WEEVILS successfully overwintered in Missouri, but it was not until mid-August that damage reached the point requiring controls. Excessive rains and late cotton provided excellent reproductive conditions which continued until the freeze of October 23, and allowed a high number of weevils to enter hibernation.

Corn Insects: *CUTWORMS (Agrotis ypsilon, Feltia subgothica and A. gladiaria). (see insect outbreak highlights). WIREWORMS (mainly Melanotus spp.) - Many fields of corn over the northern half of the State were reduced from 2 to 5 percent while a few fields in the west central area had stands reduced up to 30 percent. Widely scattered fields of small corn in Dunklin and New Madrid Counties had spots of $\frac{1}{4}$ to 1 acre killed by SAND WIREWORM (Horistonotus uhlerii). CORN FLEA BEETLE (Chaetocnema pulicaria) populations were considerably lower than the past three years and averaged 1 to 2 beetles per plant over much of the northern two-thirds of the State. CHINCH BUG. (see highlights).
*Reported by Peters, Kyd, and Thomas.

NORTHERN CORN ROOTWORM (Diabrotica longicornis) caused heavy lodging in several fields of early planted corn in Mississippi and New Madrid Counties. Several fields along the Missouri River bottoms showed similar injury. CORN LEAF APHID (Rhopalosiphum maidis) was heavy in the whorls and on tassels of corn, but little or no evidence of plant injury was observed. CORN EARWORM (Heliothis zea) whorl infestations ranged from 1 to 8 percent, which was much lower than during the past several years. With the large acreage of late planted corn, ear infestation continued high with from 75 to 100 percent of the ears showing damage. Fall surveys of ear damage showed an average State loss of 4.53 percent. FALL ARMYWORM and SOUTHWESTERN CORN BORER (see highlights). CORN SAP BEETLES (Carpophilus sp.) larvae caused moderate to heavy damage to ears. EUROPEAN CORN BORER (see highlights).

Grain Sorghum Insects (Reported by Munson, Kyd and Thomas) A few fields in west central and northwest areas, where untreated seed was used, had to be replanted due to the feeding of KAFIR ANT. FALL ARMYWORM, CORN LEAF APHID, CHINCH BUG. (see highlights). CORN EARWORM infestation and damage to the heads of grain sorghum was considerably lower than during the past three years except in the extreme southeast area where outbreak resulted in loss of 7 to 33 percent of grain. SORGHUM WEBWORM (Celama sorghiella) was light to heavy over the extreme southeast area. Loss of grain ranged from 5 to 20 percent in the more heavily infested fields. SORGHUM MIDGE (Contarinia sorghicola)- A very few fields of hybrid grain sorghum were heavily damaged in the extreme southeast area where the set of grain was reduced from 75 to 95 percent. EUROPEAN CORN BORER (Pyrausta nubilalis)- In several hybrid seed production fields in Carroll and Saline Counties second-generation infestations became very heavy on the male rows with 45 to 65 percent of the stalks infested.

Cereal Insects (Reported by Kyd and Thomas) WINTER GRAIN MITE (Penthaleus major) remained non-economic in the southwest area. ENGLISH GRAIN APHID (Macrosiphum granarium) by the first week in June, averaged 2 to 7 aphids per head of wheat over the northern half of the State. Parasites, predators and insect diseases were largely responsible for keeping this aphid under control. APPLE GRAIN APHID (Rhopalosiphum fitchii) - From 50 to 60 percent of the wheat fields in the north central and northwest areas had light populations, 2 to 32 aphids per linear foot of drill row. No infestations of GREENBUG (Toxoptera graminum) were observed. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) built up to the point of some yellowing in several fields of barley in the southwest area. A few fields of wheat in the west central area, especially in the Missouri River bottoms, had spots of 1/2 to 1 acre in size stunted, yellowed, or killed by WIREWORM feeding. ARMYWORM (Pseudaletia unipuncta) - The first larvae were observed in barley and fescue on April 25, in extreme southeast Missouri. Economic populations of up to 12 larvae per square foot developed in rank, lodged barley generally over the southeast area and in scattered fields of barley over the remainder of the southern half of the State. From 30 to 70 percent of the larvae became parasitized by Tachina or Apanteles species. Chemical controls were used primarily in the extreme southeast area. CHINCH BUG (Blissus leucopterus)- Moderate to heavy infestations in small grains were common in the west central, northwest and north central areas where counts ranged up to 15 bugs per linear foot of drill row. HESSIAN FLY (Phytophaga destructor)- The heaviest infestation continued to be in the east central area and a considerable buildup appeared in the southeast area, where several fields were from 10 to 15 percent lodged by this pest. The stubble survey revealed only 5 counties with more than 10 percent of the stubble with "flaxseed." The state average for the 65 counties surveyed was 3.53 percent of the stubble infested. FALL ARMYWORM (Laphygma frugiperda)- A very few fields of early, fall seeded barley was damaged to the point of replanting.

Legume and Pasture Insects: (Reported by Kyd, Thomas and Munson) PEA APHID (*Macrosiphum pisi*) was a problem only in individual fields of alfalfa in the southeast and north central areas. Generally, populations were much lower than during the past several years. SPOTTED ALFALFA APHID (*Therioaphis maculata*) - During the first week of May, from 1 to 2 nymphs and wingless adults per 100 sweeps were taken in the north central and northwest areas. This indicated that these aphids probably came from overwintering eggs. Populations remained very light until late July and August when some buildup occurred over most of the State. It is felt that timely summer rains were largely responsible for keeping populations below economic levels. YELLOW CLOVER APHID and CLOVER APHID (*Myzocallis trifolii* and *Anuraphis bakeri*) populations were much lower than during the past two years. SWEETCLOVER APHID (*Myzocallidium riehmi*) was light and lower than during the past season. CLOVER LEAF WEEVIL (*Hypera punctata*) ranged up to a high of 7 larvae per crown of alfalfa and 3 larvae per crown of red clover. A fungus disease had largely eliminated the problem by early May. LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) adults began appearing in red clover fields over the northern half of the state early in May, but larval infestation in the stems and heads was less than 50 percent of the past two years. DINGY CUTWORM (*Feltia subgothica*) (see highlights). BRONZED CUTWORM (*Nephelodes emmedonia*)- A few bluegrass pastures in Clay County (west central) had small spots killed by the larval feeding. WHEAT STEM MAGGOT (*Meromyza americana*)- From 1 to 4 percent of the stems of bluegrass in the northwest seed producing area was destroyed. CLOVER ROOT CURCULIO (*Sitona hispidula*) and SWEETCLOVER WEEVIL (*Sitona cylindricollis*) caused light to moderate damage to red clover, sweetclover and alfalfa in old, established stands. POTATO LEAFHOPPER (*Empoasca fabae*) (see highlights). BLISTER BEETLES (*Epicauta spp.*)- Small spots within widely scattered fields of alfalfa and soybeans had heavy foliage damage from striped blister beetle. Black blister beetle caused some light damage to the foliage and blooms of alfalfa during September.

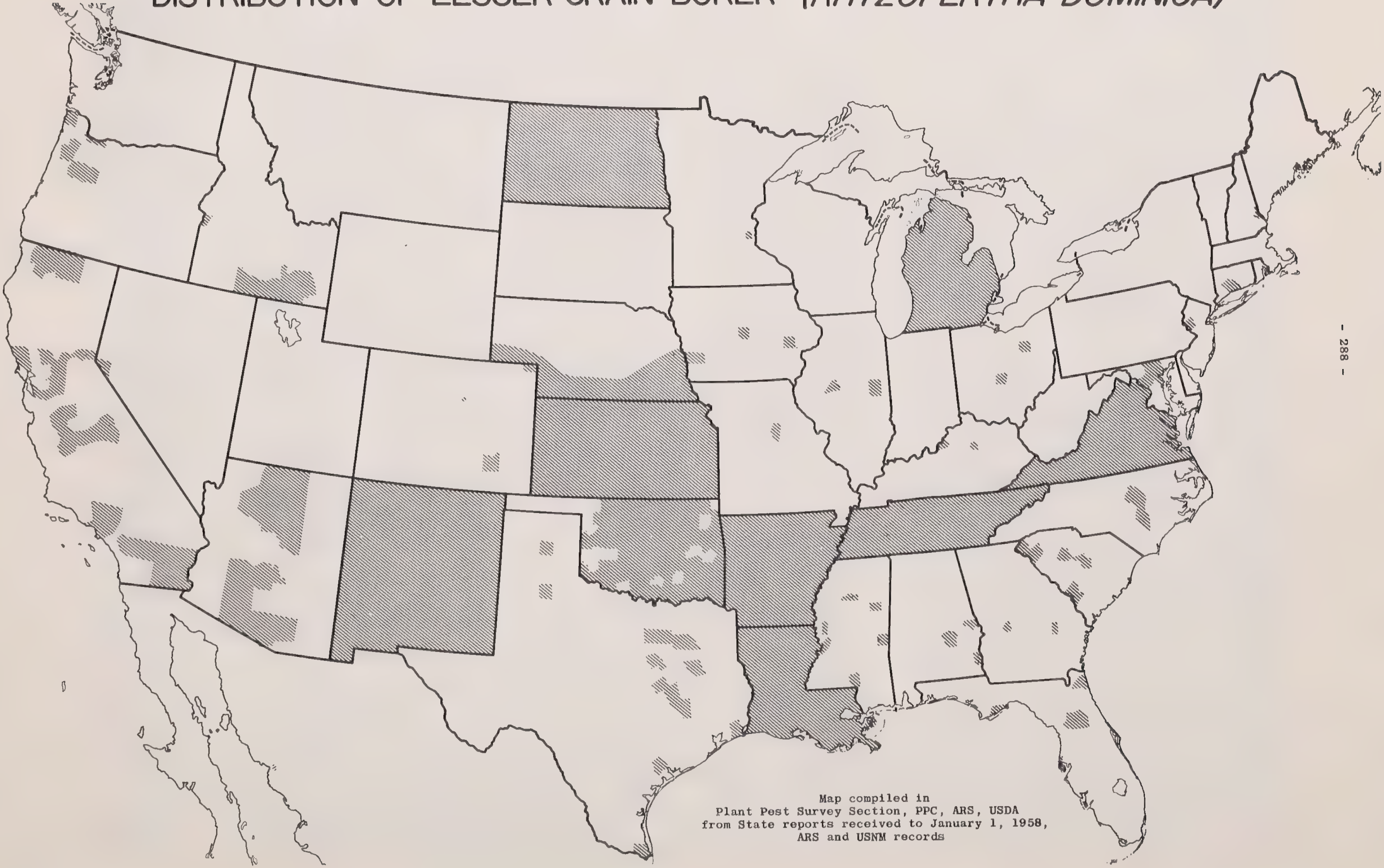
GARDEN WEBWORM (*Loxostege similalis*) (see highlights). PLANT BUGS (*Lygus lineolaris*, *Adelphocoris lineolatus* and *A. rapidus*) became numerous (up to 7 nymphs and adults per sweep) on alfalfa over the northern third of the state, but apparently caused little damage to the second cutting. THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) was present in most alfalfa fields over the southern third of the State but populations were so low that damage was non-economic. GRASSHOPPER (Mainly *Melanoplus bilituratus*, *M. femur-rubrum* and *M. differentialis*) population started out in moderate to high numbers in most pastures and legume fields. Areas of heaviest grasshopper concentrations included the southwest and the northwest areas. As the season developed nymphal populations declined, and, by the time of the fall adult survey, most of the state had non-economic numbers except for a few scattered spots of light to moderate populations in the northwest area. GREEN CLOVERWORM (*Plathypena scabra*) populations on alfalfa were slightly higher this year than last although no controls were needed. Soybeans in the west central area showed heavy silvering from THRIPS feeding. Leaf counts ranged up to 11 thrips per leaf. Populations soon declined, and, apparently plants fully recovered. BEAN LEAF BEETLE (*Cerotoma trifurcata*)- Adult populations on germinating and newly emerging soybeans in the extreme southeast area was less than during the past several years and would average about 1 beetle per 5 linear feet of row. During late July and August, adults caused considerable leaf feeding injury in the central, east central and northwest area where counts ranged from 1 to 3 beetles per linear foot of row. SOYBEAN CYST NEMATODE (*Heterodera glycines*)- Up to November 30, 1957, USDA,Plant Pest Control Division personnel and Missouri State Department of Agriculture personnel had sampled 3,342 fields consisting of 105,713 acres in 47 counties. Known infested area was still confined to three extreme southeast counties as follows: 1 field of 60 acres in Stoddard County, 6 fields of 108 acres in New Madrid County, and 77 fields of 2,886 acres in Pemiscot County.

COTTON INSECTS (George W. Thomas & Perry L. Adkisson). Adverse weather conditions plagued the Missouri cotton crop throughout the 1957 season. There were several major insect problems occurring generally over large portions of individual counties but not over the entire cotton-growing area. PLANT BUGS (including tarnished plant bug and rapid plant bug)- Activity of the fleahopper complex reached a peak late in July and continued high throughout August. Economic populations occurred in many fields but damage was generally light. Control measures were used in only a few individual fields. SPIDER MITES (mainly *Tetranychus atlanticus*). - Marginal infestations were present by early July but heavy rainfall prevented a serious buildup. Some increase did occur in late August resulting in about 25 percent of the fields showing scattered small spots of locally heavy mite populations. Control measures were largely marginal. Apparently *T. atlanticus* appeared to survive heavy rainfall much better than other species of mites. BOLLWORM (*Heliothis* spp. et al.) infestations increased late in July and reached a peak by mid-August. Heavy infestations continued well into September. At the peak of infestation, up to 50 eggs and 65 to 100 larvae per 100 terminals could be found in Dunklin, Pemiscot, and New Madrid Counties. Control measures were generally used in these heavily infested counties and good control was obtained with from 1 to 2 applications of recommended materials.

For the second consective year, a very few BOLL WEEVILS (*Anthonomus grandis*) successfully overwintered in Missouri. Very light marginal infestations were found in Dunklin County late in June and infestations slowly increased in Dunklin, New Madrid, Scott and Stoddard Counties until mid-August. Migration began in mid-August and percentage of field infestations rose sharply and continued to increase until the killing freeze of October 27. Boll damage to mid-season and late-planted cotton ranged from light to very heavy along the western and northern margins of the cotton-growing area. Estimates of loss in this heavily infested area ranged from 0 up to as high as half a bale per acre. Weevil damage to the bolls also reduced the quality of the crop in the above-mentioned area. Some control measures were used early in September. CUTWORMS (*Agrotis ypsilon* and *Feltia subgothica*)- Scattered fields, particularly in northern New Madrid and Scott Counties, had light to very heavy infestations. Damage ranged from 2 percent up to total loss of stand in a very few fields. Spotted heavy infestations of COTTON APHID (*Aphis gossypii*) occurred in scattered fields in late June. Populations gradually diminished, but by mid-August again rapidly increased. An average of 5 to 20 aphids per leaf persisted until the October 27 freeze. Considerable honeydew was present but most fields escaped having honeydew on open bolls. THRIPS counts were considerably higher this season than last, due mainly to the lateness of planting. Several fields had 5 to 13 thrips per plant of 4 to 6-leaf cotton in June but the fields soon outgrew this injury. For the third consecutive year, third-brood EUROPEAN CORN BORER (*Pyrausta nubilalis*) larvae were present in widely scattered fields of cotton in Scott, Mississippi and New Madrid Counties. Percentage of stalks infested was low, 0.5 to 2 percent. Once again it was noted that the later-instar larvae usually left the stalks and attacked nearly mature bolls causing damage similar to that of bollworm. Very low numbers of COTTON LEAFWORM (*Alabama argillacea*) were found early in August. Populations build up and moderate to heavy ragging appeared in many fields where controls were not applied. Due to the lateness of the crop very little staining of lint occurred.

Cooperators: The following Missouri entomologists also contributed to the Cooperative Economic Insect Survey during 1957: Harry E. Brown, Lee Jenkins, Wilbur R. Enns, Curtis W. Wingo, Don Peters, Perry L. Adkisson, W. D. Buchanan, Sam Goolsby and Robert Jackson.

DISTRIBUTION OF LESSER GRAIN BORER *(RHYZOPERTHA DOMINICA)*



Map compiled in
Plant Pest Survey Section, PPC, ARS, USDA
from State reports received to January 1, 1958,
ARS and USNM records

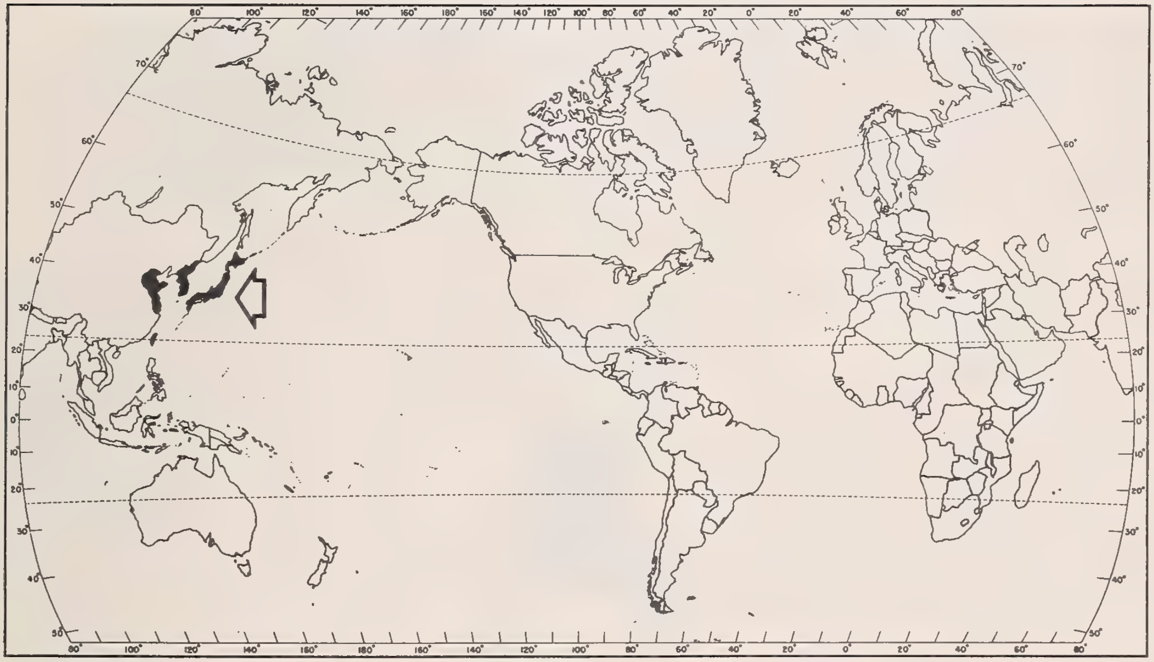
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

FRUIT WEEVIL* (*Rhynchites heros* Roelofs)

Economic Importance: Destruction of the fruit and fruiting twigs of host trees by this curculionid may be practically complete in severe infestations, The pest is common throughout most of Japan, Korea and in areas of China. Serious injury has occurred on pear in the latter country. After oviposition, the adults cut into the fruits which then drop to the ground. One adult may cause considerable fruit-drop from each tree.

Hosts: Attacks peach, pear, apple, cherry, apricot, plum, quince , loquat and fig. Most severe on loquat and peach in Japan.

Distribution: Known to occur in Japan, Korea, Formosa and areas of China.



General Distribution of Fruit Weevil

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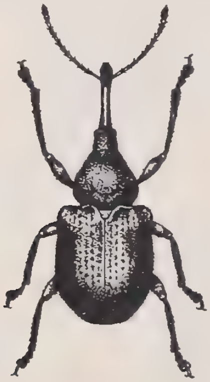
* Also called peach weevil (Curculionidae, Coleoptera)   No. 45 of Series

Life History and Habits: Overwintering adults appear in April and begin to feed on young buds. Mating starts in 3 to 4 days and oviposition 2 days later. Deep holes about 7 mm. are eaten into the young fruit after which the female deposits from one to three eggs in each cavity. Usually only one excavation is made in each fruit, but when populations are abundant, two or more egg cavities may be made. About 35 to 50 eggs are produced by each female. A gelatinous secretion from the mouth is placed over the hole in the fruit. The eggs hatch in about a week and the larvae feed and develop in the soft seed or seed cavities of the fruit. They sometimes may leave the fruit and feed on roots of weeds and decaying vegetables. The larval period requires 40 to 50 days. Pupation takes place in the soil and lasts 3 to 4 weeks. Late-maturing larvae hibernate in earthen cells and pupate in the spring. Adults live practically all summer and continue to attack available fruits. There is one generation a year. Adults are active at night, feeding on all parts of the tree. Adults may be jarred from trees in the same manner as the plum curculio.

Description: The adult is large, 10 mm. long, iridescent, reddish-purple in color, robust, with a long thick snout. It is covered with soft, dark red hairs. Body and wings densely, coarsely punctuate and furrowed. Legs long, the front pair particularly heavy. Eggs are elliptical, milk-white, about 0.7 mm. in length.. Larvae 12 mm. when mature, fat with row of thorn-like cuticular projections on each segment of body. Pupae yellow, naked; long white cuticular thorns on back of head, venter of thorax, and each abdominal segment. A pair of brown thorns is found at anal end of body. (Prepared in Plant Pest Survey Section in cooperation with other ARS agencies.) CEIR 8(15) 4-11-58



Rhynchites heros Adult

Figure of adult from Iconographia Insectorum Japonicorum, 2nd. edit., 1954. 1736 pp., Tokyo.